Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) An isolated DNA molecule comprising a DNA sequence encoding [[a]] polypeptide ~~with a first amino acid sequence selected from the group consisting of the amino acid sequences of the polypeptides MTBN1, MTBN2, MTBN3,~~ MTBN4, ~~MTBN5, MTBN6, MTBN7, and MTBN8,~~

~~or a second amino acid sequence identical to said first amino acid sequence but with conservative substitutions,~~

~~wherein said polypeptide has *Mycobacterium tuberculosis* specific antigenic and immunogenic properties~~.

2. (Currently amended) An isolated ~~portion of the~~ DNA molecule ~~of claim 1, said portion~~ comprising a DNA sequence encoding a segment of ~~said~~ polypeptide <u>MTBN4</u> shorter than [[the]] full-length polypeptide <u>MTBN4</u>, said segment having *Mycobacterium tuberculosis* specific antigenic and immunogenic properties.

3. (Previously presented) A vector comprising:

(a) the DNA molecule of claim 1; and

(b) a regulatory sequence operationally linked to said DNA sequence, said regulatory sequence allowing for expression of the polypeptide encoded by said DNA sequence in a cell.

4. (Previously presented) A vector comprising:

(a) the DNA molecule of claim 2; and

(b) a regulatory sequence operationally linked to said DNA sequence, said regulatory sequence allowing for expression of the polypeptide encoded by said DNA sequence in a cell.

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5. (Original) A cell transformed with the vector of claim 3.

6. (Original) A cell transformed with the vector of claim 4.

7. (Original) A composition comprising the vector of claim 3 and a pharmaceutically acceptable diluent or filler.

8. (Original) A composition comprising the vector of claim 4 and a pharmaceutically acceptable diluent or filler.

9. (Previously presented) A composition comprising at least two DNA sequences, each encoding a polypeptide of the *Mycobacterium tuberculosis* complex that is not a polypeptide encoded by the genome of cells of the Bacille Calmette Guerin (BCG) strain of *Mycobacteria bovis*, said DNA sequences being operationally linked to a regulatory sequence which allows for expression of each said polypeptide in a cell of a vertebrate,

wherein at least one of said at least two DNA sequences is a DNA molecule of claim 1.

10. (Currently amended) A composition comprising at least two DNA sequences, each encoding a functional fragment of a polypeptide of the *Mycobacterium tuberculosis* complex that is not a polypeptide encoded by the genome of cells of the Bacille Calmette Guerin (BCG) strain of *Mycobacteria bovis*, said DNA sequences being operationally linked to a regulatory sequence which allows for expression of each said polypeptide in a cell of a vertebrate,

wherein at least one of said at least DNA sequences is a DNA molecule of claim 2.

11. (Currently amended) An isolated [[polypeptide]] protein with a first amino acid sequence selected from the group consisting of the sequences of the polypeptides MTBN1, MTBN2, MTBN3, wherein the protein comprises polypeptide MTBN4, MTBN5, MTBN6, MTBN7, and MTBN8,

or a second amino acid sequence identical to said first amino acid sequence but with conservative substitutions,

~~wherein said polypeptide has~~ *~~Mycobacterium tuberculosis~~* ~~specific antigenic and~~ ~~immunogenic properties~~.

12. (Currently amended) An isolated ~~segment of the polypeptide~~ [[of claim 11, said]] protein comprising a segment of polypeptide MTBN4 [[being]] shorter than [[the]] full-length polypeptide MTBN4 and having *Mycobacterium tuberculosis* specific antigenic and immunogenic properties.

13. (Currently amended) A composition comprising the [[polypeptide]] protein of claim 11 and a pharmaceutically acceptable diluent or filler.

14. (Currently amended) A composition comprising ~~a functional fragment of~~ the [[polypeptide]] protein of claim 12 and a pharmaceutically acceptable diluent or filler.

15. (Previously presented) A composition comprising at least two polypeptides of the *Mycobacterium tuberculosis* complex, each polypeptide not being encoded by the genome of the cells of the BCG strain of *Mycobacterium bovis*, wherein at least one of said at least two polypeptides is a [[polypeptide]] protein of claim [[1]] 11.

16. (Currently amended) A composition comprising functional fragments of at least two polypeptides of the *Mycobacterium tuberculosis* complex, each polypeptide not being encoded by the genome of cells of the Bacille Calmette Guerin (BCG) strain of *Mycobacteria bovis*, wherein at least one of said at least polypeptides is a [[segment]] protein of claim [[2]] 12.

17. (Currently amended) A method of diagnosis comprising:

(a) administration of the composition of claim 15 to a subject suspected of having or being susceptible to *Mycobacterium tuberculosis* infection; and

(b) detecting an immune response in said subject to said composition as an indication that said subject has ~~or is susceptible~~ been exposed to *Mycobacterium tuberculosis*.

18. (Currently amended) A method of diagnosis comprising:

(a) administration of the composition of claim 16 to a subject suspected of having or being susceptible to *Mycobacterium tuberculosis* infection; and

(b) detecting an immune response in said subject to said composition as an indication that said subject has been exposed to *Mycobacterium tuberculosis*.

19. (Withdrawn-currently amended) A method of diagnosis comprising:

(a) providing a population of cells comprising CD4 T lymphocytes from a subject;

(b) providing a population of cells comprising antigen presenting cells (APC) expressing a major histocompatibility complex (MHC) class II molecule expressed by said subject;

(c) contacting the CD4 lymphocytes of (a) with the APC of (b) in the presence of the [[polypeptide]] protein of claim [[12]] 11; and

(d) determining the ability of said CD4 lymphocytes to respond to said [[polypeptide]] protein, wherein the ability of said CD4 lymphocytes to respond to said protein is [[as]] an indication that said subject has or is susceptible to *Mycobacterium tuberculosis* infection.

20. (Withdrawn-currently amended) A method of diagnosis comprising:

(a) providing a population of cells comprising CD4 T lymphocytes from a subject;

(b) providing a population of cells comprising antigen presenting cells (APC) expressing at least one major histocompatibility complex (MHC) class II molecule expressed by said subject;

(c) contacting the CD4 lymphocytes of (a) with the APC of (b) in the presence of the [[segment]] protein of claim 12; and

(d) determining the ability of said CD4 lymphocytes to respond to said [[polypeptide]] protein, wherein the ability of said CD4 lymphocytes to respond to said protein is [[as]] an indication that said subject has or is susceptible to *Mycobacterium tuberculosis* infection.

21. (Withdrawn--currently amended) A method of diagnosis comprising:

(a) providing a population of cells comprising CD4 T lymphocytes from a subject;

(b) providing a population of cells comprising antigen presenting cells (APC) expressing at least one major histocompatibility complex (MHC) class II molecule expressed by said subject;

(c) contacting the CD4 lymphocytes of (a) with the APC of (b) in the presence of the composition of claim 15; and

(d) determining the ability of said CD4 lymphocytes to respond to said [[polypeptide]] composition, wherein the ability of said CD4 lymphocytes to respond to said composition is [[as]] an indication that said subject has or is susceptible to *Mycobacterium tuberculosis* infection.

22. (Withdrawn--currently amended) A method of diagnosis comprising:

(a) providing a population of cells comprising CD4 T lymphocytes from a subject;

(b) providing a population of cells comprising antigen presenting cells (APC) expressing at least one major histocompatibility complex (MHC) class II molecule expressed by said subject;

(c) contacting the CD4 lymphocytes of (a) with the APC of (b) in the presence of the composition of claim 16; and

(d) determining the ability of said CD4 lymphocytes to respond to said [[polypeptide]] composition, wherein the ability of said CD4 lymphocytes to respond to said composition is [[as]] an indication that said subject has or is susceptible to *Mycobacterium tuberculosis* infection.

23. (Withdrawn--currently amended) A method of diagnosis comprising:

(a) contacting the [[polypeptide]] protein of claim 11 with a bodily fluid of a subject; and

(b) detecting the presence of binding of antibody to said [[polypeptide]] protein, wherein the presence of binding of antibody to said protein is [[as]] an indication that said subject has or is susceptible to *Mycobacterium tuberculosis* infection.

24. (Withdrawn--currently amended) A method of diagnosis comprising:

(a) contacting the [[segment]] <u>protein</u> of claim 12 with a bodily fluid of a subject; <u>and</u>

(b) detecting the presence of binding of antibody to said [[polypeptide]] <u>protein,</u>

<u>wherein the presence of binding of antibody to said protein is</u> [[as]] an indication that said

subject has or is susceptible to *Mycobacterium tuberculosis* infection.

25. (Withdrawn--currently amended) A method of diagnosis comprising:

(a) contacting the composition of claim 15 with a bodily fluid of a subject; <u>and</u>

(b) detecting the presence of binding of antibody to said composition, <u>wherein the</u>

<u>presence of binding of antibody to said composition is</u> [[as]] an indication that said subject has or

is susceptible to *Mycobacterium tuberculosis* infection.

26. (Withdrawn--currently amended) A method of diagnosis comprising:

(a) contacting the composition of claim 16 with a bodily fluid of a subject; <u>and</u>

(b) detecting the presence of binding of antibody to said composition, <u>wherein the</u>

<u>presence of binding of antibody to said composition is</u> [[as]] an indication that said subject has or

is susceptible to *Mycobacterium tuberculosis* infection.

27. - 34. (Cancelled)

35. (Currently amended) The DNA molecule of claim 1, wherein the DNA sequence

is ~~selected from the group of DNA sequences consisting of the *mtbn1, mtbn2, mtbn3,*~~ *mtbn4* ~~,~~

~~*mtbn5, mtbn6, mtbn7,* and *mtbn8*~~.

36. - 54. (Cancelled)